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EVALUATING THE IMPACT OF A PEDAGOGICAL TRAINING PROGRAM OFFERED TO AWARDED UNIVERSITY TEACHERS

Evaluarea impactului unui program de formare pedagogică oferit profesorilor
universitari premiați

Radu BALAN, Nadia PURTAN, Velibor MLADENOVICI,
Marian D. ILIE

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EVALUATING THE IMPACT OF A PEDAGOGICAL TRAINING PROGRAM OFFERED TO AWARDED UNIVERSITY TEACHERS

Radu Balan*

West University of Timișoara,
Center of Academic Development,
Timișoara, Romania
radu.balan@e-uvt.ro

Nadia Purtan**

West University of Timișoara,
Center of Academic Development,
Timișoara, Romania
nadia.coman@e-uvt.ro

Velibor Mladenovici***

West University of Timișoara,
Center of Academic Development; Department of Teacher Training,
Timișoara, Romania
velibor.mladenovici@e-uvt.ro

Marian D. Ilie****

West University of Timișoara,
Center of Academic Development; Department of Teacher Training,
Timișoara, Romania
marian.ilie@e-uvt.ro

* Research Assistant, Center of Academic Development of the West University of Timișoara; Master's student at the "Educational Management and Curriculum Development" program, Department of Educational Sciences, Faculty of Sociology and Psychology, West University of Timișoara, Romania.

** Research Assistant, Center of Academic Development of the West University of Timișoara; Master's student at the "Educational Management and Curriculum Development" program, Department of Educational Sciences, Faculty of Sociology and Psychology, West University of Timișoara, Romania.

*** Doctoral Research Assistant, Center of Academic Development, Department of Teacher Training, West University of Timișoara, Romania. Corresponding author.
<https://orcid.org/0000-0002-6118-7046>

**** Full Professor habil., Center of Academic Development, Department of Teacher Training, West University of Timișoara, Romania.

Abstract

A didactic grant competition for academics is organized annually at the West University of Timișoara (WUT), offering a grant to the winners of a public student-centered activity project competition. The teaching grant winners later take part in a program to develop their pedagogical skills in student-centered teaching based on the WUT's reflexive-collaborative (i.e., *RCL*) instructional model. Next, during one academic semester, grant winners must implement the RCL instructional model in one specific subject matter. Based on a quantitative quasi-experimental design, this study examined the impact of a pedagogical program offered to the beneficiaries of the 2020 grant competition at both teachers' and student levels. At the teachers' level, we measured their conceptions of teaching, teaching approaches, and psychological resources. At the students' level, we investigated their evaluation of their teachers' teaching behavior and their learning approaches. Analyses such as Two-way mixed ANOVA, Quade's ANCOVA, and Mann-Whitney U were conducted to investigate the gathered data. Academics in the EG reported statistically significant improvements in their conceptions of promoting active learning. According to their students, teachers in the experimental group employed more student-centered assessment methods and teaching behaviors that encouraged active learning. Our results also showed that academics in the control group reported higher resilience levels at the end of the academic semester, and according to their students, their more traditional teaching approaches seemed more effective in stimulating their students' understanding of fundamental concepts. The results could have been more significant regarding the students' learning approaches. Because of the beginning of the Covid-19 pandemic, we encountered several obstacles in the impact assessment process (e.g., *high values at the pretest, the impossibility of matching students' answers*). Although our findings have some limitations, the present article has noteworthy implications for stakeholders involved in in-service teacher training programs, in particular, conducted in higher education institutions. Practical implications of the findings for both academic developers and future research are discussed.

Keywords: academic development, academic teaching grant, impact evaluation, pedagogical training.

Rezumat

La Universitatea de Vest din Timișoara (UVT) se organizează anual o competiție de granturi didactice pentru cadrele didactice universitare în care se oferă câte o bursă didactică câștigătorilor unui concurs public de proiecte de activitate centrată pe student. Câștigătorii burselor didactice participă ulterior la un program de dezvoltare a competențelor pedagogice în predarea centrată pe student, bazat pe modelul de instruire reflexiv-colaborativ (adică RCL) al UVT.

Mai apoi, pe parcursul unui semestru academic, câștigătorii premiilor trebuie să pună în aplicare modelul de instruire RCL la o disciplină pe care o predau. Bazat pe un design cantitativ cvasi-experimental, prezentul studiu a examinat impactul programului pedagogic oferit beneficiarilor concursului de granturi 2020 la nivelul cadrelor didactice și la cel al studenților. La nivelul cadrelor didactice, am măsurat resursele lor psihologice, dar și concepțiile și abordările de predare ale acestora. La nivelul studenților, am investigat percepția studenților asupra comportamentului didactic al profesorilor lor și abordările lor în ceea ce privește învățarea. Pentru a investiga datele colectate, am folosit mai multe analize statistice, și anume, Two-way mixed ANOVA, Quade's ANCOVA și Mann-Whitney U. Cadrele didactice din grupul experimental (GE) au raportat îmbunătățiri semnificative din punct de vedere statistic în legătură cu concepțiile lor privind promovarea învățării active. Potrivit studenților lor, profesorii din GE au utilizat mai multe metode de evaluare centrate pe student și au adoptat comportamente didactice care au încurajat învățarea activă, decât omologii lor din grupul de control (GC). Rezultatele noastre au arătat, de asemenea, că profesorii din GC au raportat niveluri mai ridicate de reziliență la sfârșitul semestrului și, potrivit studenților lor, abordările lor didactice mai tradiționale păreau mai eficiente în stimularea înțelegerii de către studenți a conceptelor fundamentale. Rezultatele ar fi putut fi mai semnificative în ceea ce privește abordările studenților față de învățare. Din cauza începerii pandemiei de Covid-19, am întâmpinat mai multe piedici în procesul de evaluare a impactului (de exemplu, valori ridicate la pretest, imposibilitatea de a potrivi răspunsurile studenților etc.). Chiar dacă rezultatele noastre au unele limitări, prezentul articol are implicații notabile pentru alți actori implicați în programele de formare continuă a cadrelor didactice, în special cele desfășurate în instituțiile de învățământ superior. Sunt discutate implicațiile practice ale rezultatelor atât pentru dezvoltatorii academici, cât și pentru cercetările viitoare.

Cuvinte-cheie: dezvoltare academică, evaluare de impact, granturi didactice universitare, program de formare pedagogică.

1. Introduction

Higher education finds itself in the middle of a paradigm transformation from a traditional teacher-centered paradigm to a more student-centered one (O'Connor, 2020). Students' active involvement in the higher educational process is promoted as a quality assurance measure (ENQA, 2015). In this regard, student-centered instruction is preferred to the detriment of teacher-centered

teaching because it is more probable to result in students embracing deep learning approaches (Marchant et al., 2017; Trigwell et al., 1999; Uiboleht et al., 2018). Student-centered teaching describes an instruction that addresses students' individual needs, stimulates imaginative reconstruction, reflection, and independent thinking, and engages students in meaningful learning (Postareff & Lindblom-Ylänne, 2008; Prosser & Trigwell, 2014). Student-centered teaching is also associated with several positive outcomes, such as students' progress, an increase in motivation and interest in learning (Bremner et al., 2022), creative thinking, higher performance in basic learning (IQ, verbal, math) and an increase in participation and satisfaction (Cornelius-White, 2007). Universities worldwide promote the student-centered approach by offering academic instructional development opportunities (Amundsen & Wilson, 2012), such as teaching grants or professional development programs (Chalmers, 2011; Jacob et al., 2015). Even if the effect size is small, the overall positive impact of such actions has been confirmed by the literature (Ilie et al., 2020), and these effects can be observed at both the teacher and student levels (e.g., Postareff et al., 2007; Prosser et al., 2003). Also, recommendations and real opportunities to participate in quality pedagogical development programs measure a university's dedication to teaching improvement (HEA, 2009).

In past decades, many training programs have been developed to improve the teachers' instructional approach to stimulate students' deep learning approaches. Much effort has gone into evaluating the effectiveness of such programs. However, even the studies that use such a quasi-experimental design tend only to evaluate the impact at the teacher's or student's level (Baroffio et al., 2006; Stes et al., 2010a) or only to use one single time-points (Nurrenbern et al., 1999). Therefore, the last systematic reviews in the field outlined that to advance conclusive answers about the actual effect of those programs, well-designed studies with a quasi-experimental approach investigating the impact at various levels (e.g., teachers' level, students' level, institutional level, etc.) and more time-points are needed (Ilie et al., 2020; Stes et al., 2010b). In a study published in 2015 by Matei, Hâj, and Alexe, out of the 27 Romanian universities that were evaluated, 40% did not adopt any strategy to implement student-centered learning. Within the other 60%, only two universities proposed strategic approaches to develop student-centered practices. In contrast, the others only presented incomplete or incoherent

views. In 2010, ARACIS (i.e., the governmental organization responsible with quality assurance at academic level) stated that Romanian higher education is rather self-centered, with universities mentioning student-centered education only in mission statements and charters. The poor implementation of student-centered learning is also confirmed by the views of student organizations across the country (ANOSR, 2009). Evidence on the impact of training development programs for academics on student and/or teacher level in the Romanian higher education context is rather scarce (Eraşcu & Mladenovici, 2022; Mladenovici et al., 2019; Petrescu & Benta, 2023). However, there are also some good practices for implementing student-centered teaching initiatives. For example, using a three-wave quasi-experimental longitudinal study to capture the impact of a pedagogical program (i.e., aiming to develop teachers' student-centered teaching skills) at both teachers' and students' levels, Mladenovici et al. (2019) found out that the program had an immediate effect on decreasing students' preference for surface learning and partially on their perceptions of teaching. One year later, they found a statistically significant positive effect on students' preferences for deep learning approaches and their perceptions of teaching quality.

Following both national and international good practices regarding academic development, in the 2020-2021 academic year, at West University of Timișoara, the Center of Academic Development organized a didactic grants competition. This competition was part of the strategic university development plan to promote student-centered educational practices. As a result of the competition, 20 university teachers were selected and awarded. Afterward, these academics participated in a 25-hour long training program to change the participants' teaching and learning conceptions and teaching practices towards a more student-centered approach by integrating the Reflexive-Collaborative Learning instructional model into their daily teaching practice. Additionally, as a result of the participation in the training, since student-centered practices require a high level of implication from the teachers, an increase in work engagement, teaching motivation, and other psychological resources was to be expected. A more detailed description of the entire process can be found in Annex 1. Complementary to the training program, an impact assessment process based on a quasi-experimental design with pretest and posttest measurements was conducted to investigate the pedagogical program's effect at teachers' and students' levels. The effect of the pedagogical program was

evaluated for several variables related to the academics (i.e., teaching conceptions, teaching approaches, and psychological resources) and their students (i.e., learning approaches and evaluations of teaching).

2. Theoretical framework

Professional development programs can improve academics' teaching (i.e., conceptions and approaches) and students' approaches to learning (Gibbs & Coffey, 2004). According to Biggs' Presage-Process-Product (3P) model (2003) and the life-long work of Trigwell and Prosser (2020), there are several teachers and contextually related factors (e.g., academics' conceptions, understandings, approaches to teaching, self-efficacy, specific of the discipline) that impact students' learning outcomes (i.e., perceptions of their learning context, learning approaches). Specifically, there is evidence that pedagogical training programs support academics in adopting more student-centered teaching conceptions as well as approaches (Ginns et al., 2008; Stes et al., 2010a) and increase several motivational aspects such as self-efficacy and teaching motivation (Noben et al., 2021; Postareff et al., 2007). Additionally, there is evidence that the teachers' psychological resources (e.g., engagement, self-efficacy, optimism) are strongly linked to each other (Vizoso-Gómez, 2020) and that some of them (e.g., teaching engagement) can act as a predictor for student related outcomes such as learning approaches and engagement (Zhang & Yang, 2021). However, even though the positive connection between student-centered teaching behaviors and deep approaches to learning has been confirmed, it is not clear precisely what other factors play a function in the type of learning approach students use (Baeten et al., 2010). Therefore, the present study brings additional insight by investigating known and unknown factors related to teaching and learning approaches.

2.1. Approaches to teaching

The academics' teaching approaches represent "a combination between one's intention of teaching and teaching strategy" (Trigwell & Prosser, 1996, p. 78). Teaching approaches can be divided into two main categories, teacher-centered and student-centered (Jacobs et al., 2020). Academics

that employ a teacher-focused teaching approach view education as a one-way process in which the information transmission from teacher to learner is at the core (Trigwell et al., 1999). This kind of teaching approach is not recommended since it's correlated with a higher chance of students adopting surface learning approaches (Prosser & Trigwell, 2014; Trigwell et al., 1999; Uiboleht et al., 2018). Alternatively, student-centered teachers opt for more dynamic interaction, considering the student's needs and active involvement in the teaching-learning process (Postareff & Lindblom-Ylänne, 2008; Prosser & Trigwell, 2014). Considering their positive impact on students' intention to adopt deep learning approaches, student-centered teaching strategies are advised (Prosser & Trigwell, 2014; Uiboleht et al., 2018). Therefore, implementing professional development programs should be encouraged to help higher education teachers transition from a teacher-centered (i.e., more traditional) to a more sophisticated teaching approach (i.e., student-centered instruction, student-centered teaching), ultimately leading to an increase in students' deep learning approaches (Gibbs & Coffey, 2004; Stes et al., 2010a).

2.2. Conceptions about teaching

The academics' teaching conceptions are partially unconscious beliefs (i.e., ideas and thoughts) about teaching and learning (Jacobs et al., 2012; Pratt, 1992) that can affect both teachers' teaching approaches (Postareff et al., 2008) and students' learning results (Gibbs & Coffey, 2004). Teaching conceptions comprise three fundamental dimensions: teacher-centeredness, appreciation of active learning, and orientation to professional practice. Teacher-centeredness refers to how important one perceives one's role as a teacher to be (Jacobs et al., 2014). Appreciation of active learning encompasses how teachers value students' implication in discussing and applying knowledge (Dolmans et al., 2003). Orientation to professional practice highlights teachers' views on the relevance of the information for students' future professional practice (Jacobs et al., 2014). Regarding faculty development programs, previous research concluded that long-lasting and meaningful transformations in teaching practices are improbable unless there is a change in the teachers' underlying conceptions (Kember & Kwan-Por, 2000; Postareff et al., 2007).

2.3. Work engagement

Work engagement is “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002, p. 74). Specifically, vigor emphasizes increased energy levels, effort invested in one’s work, and mental resilience. Dedication stresses significant pride in one’s work, the belief that it is substantial, and feelings of enthusiasm toward it. Absorption is defined by active and profound involvement, often associated with the feeling that time goes by fast while working and difficulty ceasing the activity (Schaufeli et al., 2002). Evidence shows that high levels of work engagement predict high confidence levels in professional training programs (Fiorilli et al., 2020). Therefore, knowing the academics’ work engagement levels before implementing a professional development program is essential to predict the expected results.

2.4. Psychological capital

Psychological capital is a many-sided construct, a positive psychological developmental condition of someone illustrated by self-efficacy, positiveness, resilience, and hope (Luthans et al., 2007). Self-efficacy is “belief in one’s ability to mobilize the motivation, cognitive resources, and courses of action necessary to execute a specific action in a given context” (Stajkovic & Luthans, 1998, p. 66). People with raised self-efficacy feel secure in solving long-term issues at work and performing everyday duties. Optimism (i.e., positiveness) is a general hope of favorable outcomes (Carver & Scheier, 2002). Thus, when confronted with rocky circumstances (i.e., workplace), an optimistic person anticipates positive results. Hopefulness encompasses the willpower to manage, recognize, portray, and follow the path to accomplishment (Snyder, 2000). Workers with increased hope consider multiple ways of achieving goals using various strategies. Resilience is the capability to persevere and rebound quickly from facing troubles, disputes, shortage of success, or conditions involving high obligation (Luthans et al., 2007). Resilient workers can manage obstacles and demands in the workplace and can also recover quickly from stressful events. One of the essential elements of PsyCap is its state-like character, making it available for development (Luthans et al., 2007). Thus, academic developers can expect

professional training programs for academics to influence PsyCap positively.

2.5. Motivation for teaching

Deci and Ryan's self-determination theory (Vallerand, 2000) classifies the teachers' motivation, and motivation in general, as extrinsic, and intrinsic. Extrinsically motivated teachers initiate and maintain behaviors because of external factors (i.e., sidestepping unfavorable results or acquiring rewards). In contrast, intrinsically motivated academics perform the teaching activity because they find it enjoyable. Simply said, the motivation source is the teaching (i.e., activity) itself (Gagné & Deci, 2005). Extrinsic motivation contains four distinct categories, depending on the level of autonomy: external (i.e., lack of control, external influences), introjected (i.e., concerned with recognition, avoidance of blame), identified (i.e., identifies with the task, sees it as valuable) and integrated (i.e., deeply involved in the activity, the purpose of the behavior is well defined) (Deci et al., 2017). The teachers' motivation plays an essential part in professional development programs, this factor determines whether the strategies taught will be applied in practice following the completion of the training (Osman & Warner, 2020).

2.6. Approaches to learning

Students' approaches to learning are mostly seen as the following two contrasting categories: deep learning and surface learning approaches. When students deeply approach their learning, they critically search for purpose in the studied subject matter relating it to previous bits of knowledge and life or professional experiences. By contrast, the surface approach is mainly based on memorization of the subject matter without trying to understand it (Marton & Säljö, 1976). According to the literature, student-centered teaching approaches potentially result in students adopting deep learning approaches more than in the case of teacher-centered strategies (Tiwari et al., 2006; Trigwell et al., 1999). Even more, professional development programs can improve both academics' teaching and students' learning approaches (Gibbs & Coffey, 2004), which further prompts the need to create and implement professional training programs.

2.7. Students' evaluation of teaching behavior

Students' evaluation of teaching is usually done by universities through course evaluation questionnaires which are used as a method of quality assurance (Kember & Leung, 2008). One variable targeted by this kind of instrument is a teacher's teaching behavior during class (Kometani et al., 2014). Kember and Leung (2008) highlight the following nine teaching categories of behavior dimensions that students can evaluate: teacher–student relationships, organization of teaching, students' perceptions towards the relevance of the learning materials, understanding of fundamental concepts, motivation, flexibility, challenging beliefs, active learning, and assessment. Each of these dimensions defines exemplary teaching practices derived from the teaching practice of award-winning teachers which exhibited very efficient student-centered instruction (Kember & McNaught, 2007). Students' evaluations of teachers' behavior are also predictive regarding the results of professional development programs (Karm et al., 2022). Evidence shows that when academics receive positive feedback from students, they become more likely to improve their instruction approaches (Lutovac et al., 2017). Furthermore, academics who participate in professional training programs become more capable of coping with negative student evaluations (Karm et al., 2022).

3. Methodology

3.1. Research questions

We grouped the research questions according to the level at which the impact evaluation was performed.

Impact evaluation of training sessions at the teachers' level

Q1: Is there a significant difference between EG and CG teachers regarding student-centered teaching conceptions and their teaching approaches?

Q2: Is there a significant difference between EG and CG teachers regarding teacher-centered teaching conceptions and their teaching approaches?

Q3: Are there significant differences regarding the psychological resources of EG and CG teachers?

Evaluation of the impact of training sessions at the students' level

Q4: Is there a meaningful difference between EG and CG teachers' students in their tendency to approach learning through an in-depth approach?

Q5: Is there a meaningful difference between EG and CG teachers' students in their tendency to approach learning through a surface approach?

Q6: Is there a meaningful difference between EG and CG teachers' students' perceptions of teachers' behavior in the classroom?

3.2. Participants

The sample for this study was represented by 40 faculty teachers (62.5% female, $M = 39.07$ years) together with the students from one of their subject matters. Out of the 40 academics in the two groups, $N = 20$ academics (i.e., didactic grant winners and participants in the training) were in the experimental group (i.e., EG). In contrast, there were $N = 20$ teachers with similar characteristics as counterparts in the control group. The CG teachers were selected based on the subsequent criteria: they had to teach a subject in the same field as the grant-winning teacher and have about the same age, years of experience, and qualifications. Although there is a slight difference in the teaching experience and age between the CG and EG, the differences were not statistically significant.

Both the grant beneficiary and the counterpart had to choose a referential subject matter (i.e., from the same discipline as the counterpart) and communicate the schedule of the referential subject matter and the concrete access data to the teaching activity. Also, teachers were supposed to ask their students in the chosen subject matter for their informed consent, assuring them that their participation in the impact assessment was voluntary. All the participants (i.e., teachers and students in the EG and CG) provided their authorization and were informed about the data anonymity. We collected data from the same students (i.e., in the same subject matter) at both time points. In the pretest, 856 students responded to the questionnaires (65.54% female, $M = 20.98$), while at the posttest moment, there were only 554 participants (68.23% female, $M = 21.39$ years). Even though the same students were evaluated at both moments, not all responded or completed with attention the research code at the posttest moment. Consequently, we

could not match enough students' responses from the pretest to posttest to ensure adequate statistical power. Teachers' characteristics are presented in more detail in Table no. 1, while students' characteristics are shown in Table no. 2.

3.3. The training program

Teaching grant beneficiaries were required to participate in two online training sessions that required approximately 25 work hours (i.e., 1 ETCS). To graduate the two mandatory sessions, participants had to realize a curriculum matrix of learning outcomes for a taught subject and three teaching activity projects (for a course or seminar/workshop) based on the teaching model developed by the Center of Academic Development (i.e., The Reflexive-collaborative instructional model - RCL) of the West University of Timișoara. The training sessions aimed to change the participants' teaching conceptions and approaches towards a student-centered approach by integrating the RCL model into their activity. Accordingly, improvements in students' learning approaches and their perceptions of teaching quality were expected. Even though not directly addressed, improvements in participants' psychological and motivational resources (e.g., teaching motivation, work engagement, self-efficacy, optimism) were also expected to happen as a consequence of the activities carried out in the training and all the necessary logistic support they received during the semester (i.e., between the measurements).

After completing the training sessions, in the subsequent semester (i.e., within 2020-2021 academic year), the grant winners attempted to implement the RCL teaching model in one of their disciplines. Also, with the support of the centers' team, at the second semester's end (i.e., after the implementation of the model), they had to present a portfolio of their teaching activity throughout the semester (i.e., discipline syllabus, activity plans, teaching resources).

The intervention tackled the participating teachers' conceptions through open discussions on the subject matter and practical exercises to help them reorganize how they understand the educational process towards a more student-centered view. Regarding participants' teaching approaches, after

the elaboration of the curricular matrix and the three activity projects according to the RCL model necessary to promote the training, before receiving the teaching grant, they signed a contract in which they assumed to implement during the semester at least the three teaching projects following student-centered principles of the RCL instructional model. Specific characteristics of the intervention had the potential to determine a positive change in several psychological and motivational resources that were not explicitly targeted (i.e., teaching motivation, engagement, and psychological capital). More specifically, the two-training session contained exercises meant to empower the teachers, help them optimize their use of resources, and combat challenging situations, all being capable of increasing work engagement (Virgă et al., 2021). Also, participants were guided to set pragmatic goals (i.e., hope dimension), exercises aimed at performance situations, vicarious experiences, verbal persuasion, and positive feedback (i.e., self-efficacy dimension), exercises that stimulate cognitive, emotional, and behavioral mechanisms (i.e., resilience dimension) and exercises that stimulate positive attributions (i.e., optimism dimension). Those kinds of activities were found to positively impact participants' psychological capital (Lupșa et al., 2020). Regarding intrinsic teaching motivation, personal resources generally have a motivational function that directs to more elevated levels of work engagement when job demands get higher (Virgă et al., 2015). In regard to the impact assessment at the student level, given the strong positive association between academics' student-centered approaches to teaching and their student's deep learning approaches (Marchant et al., 2017; Uiboleht et al., 2018), improvements in students from the EG learning approaches and perceptions of teaching quality were also expected.

3.4. Design of the study

Given the high subjectivity nature of the current quantitative endeavor, we opted for a quasi-experimental design (i.e., with pretest and posttest and nonequivalent groups) to increase the internal validity of the present study (Reichardt, 2019). At the teachers' level, we measured the teachers' conceptions about teaching, their psychological resources and teaching approaches in a specific subject matter. At the students' level, we measured the students' approaches to learning and the students' evaluation of the teacher's behavior within the classes they attended.

Table no. 1. Demographics of the faculty

Characteristic	Experimental group (EG)	Control group (CG)	Total
Gender			
Female	13	12	25
Male	7	8	15
Teaching experience			
≤5 years	6	4	10
>5 years	14	16	30
Age			
Minimum	24	28	24
Maximum	52	65	65
Mean	37.5	40.6	39.07
Academic rank			
Professor	12	12	24
PhD	7	3	10
Research Assistant	1	5	6
Type of discipline			
Hard	4	4	8
Soft	16	16	32

Table no. 2. Demographics of student participants

Characteristic	Pretest (N = 856)		Posttest (N = 554)	
	Experimental (N = 490)	Control (N = 366)	Experimental (N = 326)	Control (N = 228)
Age				
Minimum	17	17	18	18
Maximum	51	52	52	53
Mean	21.06	21.16	21.37	21.43
Gender				
Female	340	221	237	141
Male	136	139	75	83
Not mentioning	14	6	14	4

Characteristic	Pretest (N = 856)		Posttest (N = 554)	
	Experimental (N = 490)	Control (N = 366)	Experimental (N = 326)	Control (N = 228)
Environment of origin				
Rural	157	113	107	72
Urban	216	172	149	111
Urban-county residence	117	81	70	45
Educational level				
Bachelor	452	346	322	209
Master	38	20	4	19
Year of study				
Preparatory year	36	35	15	12
1	262	99	170	70
2	127	151	87	95
3	63	78	45	46
4	0	2	1	0
Other	2	1	8	5
Scholarship				
Yes			106	75
No			220	153

3.5. Instruments

3.5.1. *Instruments that were applied to faculty*

Academics completed the R-ATI (i.e., Revised-Approaches to Teaching Inventory - Prosser & Trigwell, 2005) which was adapted and validated on the Romanian population by the CAD team (Mladenovici et al., 2022). The instrument consists of 22 questions on a 5-point Likert scale (from 1 = very rarely true to 5 = almost always true) grouped on two scales. Also, teachers' work engagement was measured through the UWES-9 questionnaire (Schaufeli et al., 2006) which was also adapted and validated on the Romanian population (Vîrgă et al., 2009). It measures three dimensions of work engagement using 9 items on a six-point Likert scale (i.e., 0 = Never to 6 = Always or every day).

The Conceptions on Learning and Teaching (COLT - Jacobs et al., 2012) questionnaire (i.e., also adapted and validated on the Romanian population by Mladenovici & Ilie, 2023) was used to investigate university teachers' conceptions about teaching. The inventory has 18 items with a 5-point Likert scale (with 1=strongly disagree to 5=strongly agree) divided into 3 independent dimensions. Another instrument used at the teachers' level was the PsyCap (i.e., Psychological Capital Questionnaire). Developed by Luthans et al. (2007), the PsyCap consists of 24 items, 6 items for each of the four dimensions of psychological capital. Responses were recorded on a 6-point Likert scale (where 1=Strongly disagree and 6=Strongly agree). The questionnaire was adapted to the Romanian population (Lupșa & Vîrgă, 2018). Teachers also completed the WTMST (i.e., Work Task Motivation Scale for Teachers - Fernet et al., 2008) which measures Deci and Ryan's (2000) five constructs of motivation. Each subdimension has 5 items on a 5-point Likert scale (from 1=Strongly Disagree to 5=Strongly Agree).

3.5.2. *Instruments that were applied to students*

The students rated the teacher's classroom behavior by completing a multidimensional scale that assesses the teachers' classroom activity (ETCQ - Kember & Leung, 2008) adapted and validated on the Romanian population

by the CAD team (Mladenovici et al., 2023). The questionnaire consists of 49 items on a Likert scale where 1=total disagreement and 5=total agreement, grouped into nine scales. To identify how students approach their learning, we applied the R-SPQ-2F (i.e., Revised Two-Factor Study Process Questionnaire – Biggs et al., 2001) adapted and validated on the Romanian student population previously by Smarandache et al. in 2022. The R-SPQ-2F questionnaire includes 20 questions related to how students approach their learning (i.e., grouped into two main scales), with a Likert scale of 5 points (from 1=Very rarely true to 5=Almost always true).

4. Results

Regarding the data analysis, we performed descriptive and several types of inferential analyses. Two-way mixed ANOVA was used for the parametric data (i.e., respecting the assumptions for this analysis), while for the nonparametric data, according to the degree of the assumptions' accomplishment, we performed Quade's ANCOVA and Mann-Whitney U. At the pretest time, the two groups were equivalent with no significant differences in any considered variables.

Preliminary results

The descriptive statistics (i.e., Cronbach's Alpha values included) for each dimension of all instruments applied in the study for academics' can be seen in Table no. 3, while those for the students are presented in Table no. 4. At the teachers' level, most of the scales had internal consistency values ranging from acceptable ($\alpha = .61$) to excellent ($\alpha = .90$). However, some variables presented values that were too low to be included in the analysis ($\alpha < .5$). The excluded variables are Absorption (UWES-9), Hope (PsyCap), Identified Motivation to Teach and Extrinsic Motivation to Teach (WTMST). Regarding the variables measured at the student level, Cronbach's alpha values ranged from acceptable ($\alpha = .69$) to excellent consistency ($\alpha = .94$). Thus, all dimensions measured at the students' level were retained for further statistical analyses.

Table no. 3. *Descriptive and internal consistency values for all instruments applied at the teachers' level at both measurement moments*

Instruments / Variables	Moment	Nr. items	Alpha Cronbach α		Mean		Standard deviation	
			EG	CG	EG	CG	EG	CG
<i>Teaching approaches (R-ATI, Trigwell et al., 2005)</i>								
Conceptual change/ student-centered	Pretest	11	0.805	0.908	4.58	4.24	0.44	0.50
	Posttest		0.647	0.895	4.61	4.20	0.24	0.61
Information transmission/ teacher- centered	Pretest	11	0.869	0.835	3.66	3.73	0.63	0.81
	Posttest		0.429	0.881	3.55	3.72	0.49	0.77
<i>Teaching engagement (UWES-9, Schaufeli et al., 2006)</i>								
UWES_total	Pretest	11	0.771	0.760	6.11	6.09	0.65	0.61
	Posttest		0.852	0.532	6.07	6.07	0.66	0.42
Vigor	Pretest	3	0.657	0.479	5.82	5.60	0.90	1.13
	Posttest		0.615	0.671	5.63	5.73	0.88	0.59
Dedication	Pretest	3	0.620	0.740	6.38	6.27	0.66	0.79
	Posttest		0.634	0.724	6.33	6.32	0.64	0.61
Absorption	Pretest	3	0.449	0.473	6.13	6.23	0.83	0.68
	Posttest		0.535	0.098	6.23	6.17	0.61	0.71

Instruments / Variables	Moment	Nr. items	Alpha Cronbach α		Mean		Standard deviation	
			EG	CG	EG	CG	EG	CG
<i>Teaching conceptions (COLT, Jacobs et al., 2020)</i>								
Teacher centered	Pretest	8	0.693	0.821	3.43	3.53	0.50	0.64
	Posttest		0.691	0.746	3.29	3.48	0.50	0.51
Appreciation of active learning	Pretest	5	0.611	0.774	4.51	4.39	0.42	0.52
	Posttest		0.838	0.789	4.67	4.43	0.45	0.46
Orientation toward professional practice	Pretest	5	0.715	0.833	4.63	4.66	0.45	0.47
	Posttest		0.798	0.760	4.72	4.58	0.36	0.49
<i>Psychological Capital (PsyCap, Luthans et al., 2007)</i>								
PsyCap total	Pretest	24	0.865	0.745	4.21	4.27	0.40	0.27
	Posttest		0.864	0.763	4.16	4.32	0.38	0.36
Self-efficacy	Pretest	6	0.758	0.756	4.45	4.55	0.55	0.39
	Posttest		0.835	0.930	4.46	4.54	0.51	0.56
Hope	Pretest	6	0.745	0.497	4.29	4.28	0.53	0.41
	Posttest		0.586	0.831	4.29	4.28	0.53	0.41
Resilience	Pretest	6	0.769	0.808	4.14	4.22	0.52	0.48
	Posttest		0.607	0.599	3.92	4.33	0.50	0.40
Optimism	Pretest	6	0.633	0.615	3.94	4.04	0.51	0.44
	Posttest		0.694	0.643	4.03	4.10	0.50	0.51

Instruments / Variables	Moment	Nr. items	Alpha Cronbach α		Mean		Standard deviation	
			EG	CG	EG	CG	EG	CG
<i>Teaching motivation (WTMST, Fernet et al., 2008)</i>								
Intrinsic motivation	Pretest	3	0.629	0.646	4.57	4.65	0.50	0.44
	Posttest		0.676	0.758	4.57	4.63	0.41	0.48
Identified motivation	Pretest	3	0.511	0.693	4.65	4.32	0.46	0.64
	Posttest		0.524	0.685	4.40	4.27	0.50	0.78
Introjected motivation	Pretest	3	0.746	0.771	2.57	2.63	1.21	1.11
	Posttest		0.674	0.850	2.62	2.83	1.00	1.05
Extrinsic motivation	Pretest	3	0.616	0.443	2.70	2.50	1.05	0.88
	Posttest		0.741	0.350	2.50	2.62	0.95	0.74
Amotivation	Pretest	3	0.846	0.632	1.48	1.20	0.70	0.46
	Posttest		0.841	0.760	1.42	1.58	0.67	0.80

Note: EG = experimental group; CG = control group

Table no. 4. Descriptive and internal consistency values for all instruments applied at the students' level at both measurement moments

Instruments / Variables	Moment	Nr. items	Alpha Cronbach α		Mean		Standard deviation	
			EG	CG	EG	CG	EG	CG
<i>Students' learning approaches (R-2F-SPQ, Biggs et al., 2001)</i>								
Deep learning	pretest	10	.842	.837	3.15	3.12	0.77	0.76
	posttest		.854	.871	3.27	3.39	0.78	0.84
Surface learning	pretest	10	.816	.810	2.21	0.78	0.72	0.78
	posttest		.868	.872	2.32	2.42	0.84	0.86
<i>Students' perceptions of their teachers' teaching (ETCQ, Kember & Leung, 2008)</i>								
Understanding fundamental concepts	posttest	5	.811	.766	4.29	4.42	0.72	0.63
Relevance	posttest	5	.848	.856	4.36	4.33	0.77	0.72
Challenging beliefs	posttest	6	.820	.862	4.15	4.06	0.74	0.73
Active learning	posttest	5	.691	.804	4.46	4.25	0.55	0.71
Teacher-student relationship	posttest	5	.820	.837	4.32	4.44	0.76	0.66
Motivation	posttest	6	.861	.850	4.22	4.20	0.76	0.68
Organisation	posttest	7	.949	.932	4.36	4.39	0.85	0.72
Flexibility	posttest	5	.883	.916	4.62	4.62	0.64	0.63
Evaluation	posttest	5	.785	.826	4.20	3.51	0.87	1.64

4.1. Effects identified at the teachers' level

4.1.1. *The teachers' conceptions and approaches toward learning (Q1 & Q2)*

Tables no. 5 and no. 6 present the data obtained from the Two-way mixed ANOVA and Quade's ANCOVA. The interaction between moments, groups, and between moments and groups for the R-ATI and COLT instrument dimensions can be observed in these tables.

Table no. 5. *Quade's ANCOVA results regarding the academics' teaching approaches*

Statistical Analysis	Instrument	Variables	Source of variance	Sum of Squares	df	MS	F	p	η^2
Quade's ANCOVA	R-ATI	Conceptual change/ student-centered	-	74.157	1	74.157	0.908	.347	.230
		Information transmission/ teacher-centered	-	32.747	1	32.747	0.646	.427	.017

Note: *df*=degrees of freedom; *MS*=mean square; *F*=result of the statistical test; *p*=probability; partial η^2 =partial eta-squared.

Table no. 6. *Two-way mixed ANOVA and Quade's ANCOVA results regarding the academics' conceptions of teaching*

Statistical Analysis	Instrument	Variables	Source of variance	Sum of Squares	df	MS	F	p	η^2
Two-way mixed ANOVA		<i>Teacher centered</i>	Moment		1	.000	.000	1.000	.000
			Group		1	.1436	.849	.363	.022
			Moment x Group		1	.206	.650	.425	.017
			Error		38	.317			
Quade's ANCOVA	COLT	Appreciation of active learning	-	314.550	1	314.55	4.106	.050	.098
		Orientation toward professional practice	-	157.005	1	157.01	2.035	.162	.051

Note: *df*=degrees of freedom; *MS*=mean square; *F*=result of the statistical test; *p*=probability; partial η^2 =partial eta-squared.

Regarding student-centered teaching approaches and conceptions, there were statistically significant differences between academics in the EG and CG (Q1) at the posttest only in what regards their active learning appreciation conceptions ($p = .05$). CG teachers reported higher scores than EG teachers ($M_{dif} = 3.231$). There were no differences between teachers in the two groups for the other dimensions related to student-centered teaching approaches and conceptions (Q2).

4.1.2. *The teachers' psychological resources (Q3)*

The following three tables (no. 7, no. 8, and no. 9) present the data obtained from the Two-way mixed ANOVA and Quade's ANCOVA for the instruments used to measure teachers' psychological resources (UWES-9, PsyCap, and WTMST).

Table no. 7. *Two-way mixed ANOVA and Quade's ANCOVA results regarding the teachers' work engagement*

Statistical Analysis	Instrument	Variable	Source of variance	Sum of Squares	df	MS	F	p	η^2
Two-way mixed ANOVA	UWES-9	Vigor	Moment		1	1.946	3.116	.086	.076
			Group		1	.115	.115	.606	.007
			Moment x Group		1	.069	.110	.742	.003
			Error		38	.625			
Quade's ANCOVA		UWES-9_all		0.839	1	0.839	0.009	.925	.000
		Dedication		1.193	1	1.193	0.012	.913	.000

Note: df=degrees of freedom; MS=mean square; F=result of the statistical test; p=probability; partial η^2 =partial eta-squared.

Table no. 8. Two-way mixed ANOVA and Quade's ANCOVA results regarding the teachers' psychological capital

Statistical Analysis	Instrument	Variable	Source of variance	Sum of Squares	df	MS	F	p	η^2
Two-way mixed ANOVA	PsyCap	Resilience	Moment		1	.068	.858	.360	.022
			Group		1	1.168	3.108	.086	.076
			Moment x Group		1	.556	7.001	.012	.156
			Error		38	.079			
		Optimism	Moment		1	.084	1.672	.204	.046
			Group		1	.394	1,555	.221	.043
			Moment x Group		1	.000	.003	.959	.000
			Error		35	.050			
Quade's ANCOVA		PsyCap_all		149.096	1	149.096	2.430	.127	.060
		Self-efficacy		16.733	1	16.733	0.214	.646	.006

Note: df=degrees of freedom; MS=mean square; F=result of the statistical test; p=probability; partial η^2 =partial eta-squared.

Table no. 9. Two-way mixed ANOVA and Quade's ANCOVA results regarding teachers' motivation to teach

Statistical Analysis	Instrument	Variable	Source of variance	Sum of Squares	df	MS	F	p	η^2
Two-way mixed ANOVA	WTMST	Introjected motivation	Moment		1	.313	.687	.413	.018
			Group		1	.401	.206	.653	.005
			Moment x Group		1	.113	.247	.622	.006
			Error		38	.455			
Quade's ANCOVA		Intrinsic motivation		25.098	1	25.098	0.307	.582	.019
		Amotivation		191.406	1	191.41	2.394	.130	.059

Note: df=degrees of freedom; MS=mean square; F=result of the statistical test; p=probability; partial η^2 =partial eta-squared.

Significant differences in terms of the psychological resources of the academics were found, but only for the resilience dimension of the PsyCap ($p = .012$). According to post hoc analyses, the results are significantly higher for CG (Mdif = .242).

4.2. Effects identified at students' level

At the students' level, we analyzed data using three types of statistical methods based on whether the assumptions were met or not (Two-way mixed ANOVA, Quade's ANCOVA, and Mann-Whitney U test). The results obtained at the students' level for each research question are presented below.

4.2.1. Students' approaches to learning (Q4 & Q5)

Table no. 10 shows the data obtained from the Two-way mixed ANOVA and Quade's ANCOVA analysis for students' approaches to learning (R-SPQ-2F).

Table no. 10. Two-way mixed ANOVA and Quade's ANCOVA results regarding students' approaches to learning

Statistical Analysis	Instrument	Variable	Source of variance	Sum of Squares	df	MS	F	p	η^2
Two-way mixed ANOVA	R-SPQ-2F	Deep learning	Moment		1	11.69	18.221	.000	.036
			Group		1	.183	.313	.576	.001
			Moment x Group		1	.676	1.054	.305	.002
			Error		495	.641			
Quade's ANCOVA		Surface learning		5751.071	1	5751.07	0.220	.639	.000

Note: df=degrees of freedom; MS=mean square; F=result of the statistical test; p=probability; partial η^2 =partial eta-squared.

We found no significant differences in students' learning approaches between EG and CG students. Therefore, regardless of whether the students' teachers participated in the training and irrespective of the time of measurement (pretest or posttest), the differences between EG and CG students' deep learning and surface learning are insignificant.

4.2.2. Students' perceptions of teachers' behavior during class (Q6)

Differences in the Mann-Whitney U test for all dimensions of the ETCQ instrument and between the two groups of students can be seen in Table no. 11. Therefore, in terms of students' perceptions of the teacher's classroom behavior, we found significant differences between EG and CG on three dimensions: i) understanding of fundamental concepts ($p = .027$), with the median score obtained by CG (4.60) being higher than that of EG (4.40); ii) stimulation of active learning, with the median score obtained by EG (4.60) being higher than that of CG (4.40); and iii) assessment method, with the median score obtained by EG (4.40) being higher than that of CG (4.00).

Table no. 11. Mann-Whitney U results for the students' evaluation of the teaching behavior

Dimension	Moment	Mdn		U	Z	P	d
		EG	CG				
Understanding fundamental concepts	Posttest	4.40	4.60	44976.50	2.211	.027	0.182
Relevance	Posttest	4.60	4.60	39455.00	-.610	.542	0.050
Challenging beliefs	Posttest	4.17	4.17	37521.00	-1.581	.114	0.131
Active learning	Posttest	4.60	4.40	33426.50	-3.677	.000	0.306
Teacher-student relationship	Posttest	4.60	4.60	44334.50	1.888	.059	0.155
Motivation	Posttest	4.50	4.33	38265.00	-1.206	.228	0.100
Organisation	Posttest	4.71	4.71	39285.00	-.702	.482	0.057
Flexibility	Posttest	5.00	5.00	40560.50	-.047	.963	0.004
Evaluation	Posttest	4.40	4.00	38926.00	-4.366	.000	0.072

Note: EG=experimental group; CG=control group.

5. Discussions and implications

The current paper investigated the impact of a professional training program offered to academics as part of the West University of Timișoara's 2020-2021 didactic grants competition. The teachers' conceptions, psychological resources, and teaching approaches were assessed. Complementary, the students' learning approaches and perceptions of their teachers' teaching were evaluated. Previous studies on pedagogical development programs dedicated to academics made a series of recommendations, such as: using a quasi-experimental design (Ilie et al., 2020), impact analysis at both teacher and student levels (Stes et al., 2010a), and more measurement points (Gibbs & Coffey, 2004). Our study considered these recommendations in its design.

The program had no statistically significant effect on the EG academics' teaching approaches and conceptions or most of the psychological resources. While at the end of the second semester, academics in the EG reported more elevated conceptions regarding appreciation of active learning, contrary to our expectations, the CG teachers reported higher psychological resilience after the pedagogical program. The lack of impact of a training program on the teachers' practices is not uncommon (Norton et al., 2005; Rienties et al., 2013), although most studies tend to report a positive influence (Gibbs & Coffey, 2004; Noben et al., 2021; Postareff et al., 2007). The results could be explained by the additional effort the EG teachers had to exert by participating in the intervention, highlighted by the significantly lower score on the resilience scale. Also, the fact that the CG teachers were aware of their role as a control group could have influenced their teaching activity, determining them to adopt a more active approach towards teaching. This phenomenon is known as a manifestation of the "Hawthorne effect" (Shayer, 1992), meaning that when participants know their role as counterparts in a study, it may determine behavior changes. These findings imply that training programs can be seen as an additional strain by teachers, leading, in fact, to a lower performance level. Moreover, CG teachers could have adopted new methods themselves in their attempt to improve their teaching practices.

Regarding the students' perceptions of teaching, students in the EG evaluated their teacher's classroom behavior as stimulating to a greater extent their active learning than students in the CG, thus confirming the teaching

conceptions of their teachers. Furthermore, EG students considered their teachers more prone to use student-centered assessment methods. On the other hand, CG students scored their teachers as stimulating their understanding of fundamental concepts to a higher degree. These results emphasize that the intervention's main effect was the adoption of practices capable of increasing the students' interest and implications. CG teachers' traditional teaching methods seem more effective in delivering fundamental content in ways students can understand. This trade-off between interest and basic understanding should be further explored to determine whether the result is more positive for one rather than the other. In this sense, future studies should also compare students' grades at the end of the semester or academic year. The literature offers evidence that both support (Brauchle & Jerich, 1998; Ebrahimi & Kojuri, 2012; Meizlish et al., 2018) and deny this impact (Marchant et al., 2017; Nurrenbern et al., 1999; Stes et al., 2013).

For the students' approaches to learning variable, we did not find significant differences between EG and CG. Usually, studies confirm the positive effect of teachers participating in professional training on the students' approaches to learning (Gibbs & Coffey, 2004; Marchant et al., 2017). However, it is well-known that students' choices for a specific learning approach are influenced by many contextual variables such as instructional strategies, type of assessment used within the discipline, interests, goals, academic year, etc. (Dinsmore, 2017). Worth noting here is that the semester in which the impact assessment was carried out was the second semester of the 2020-2021 academic year (i.e., the first semester after the lockdown caused by the COVID-19 pandemic). This fact and some other limitations presented below could explain the lack of significant results (i.e., the lack of a follow-up, the difference in the number of respondents from one moment to another, the lack of control over other possible disturbing factors, etc.). One should notice that most variables already presented high values at the pretest, making possible improvements at the next measurement moments difficult to identify.

6. Limitations and recommendations

Professional training is a complex process requiring ongoing pedagogical preparation for positive changes, as numerous factors can contaminate the

measured effects (e.g., the number of participants, data collection, cultural factors, etc.) (Postareff et al., 2007). The present research has several limitations that make its results demanding to generalize. Firstly, statistical strength was low due to the small sample of academics in the two groups. As a result, future studies should consider either increasing the number of teachers or accumulating data from several years of implementation of such studies. Secondly, the difference in the composition of the groups from pretest to posttest at the students' level is another limitation that prompted the use of non-parametric tests to analyze the data and may be responsible for the lack of significant results. Thirdly, there were high scores at the pretest (i.e., ceiling effect). One possible reason may be that we collected only self-reported data, which are prone to high levels of subjectivity. Future research should also consider qualitative measures (e.g., videotaping of teaching activities, classroom observations, interviews, students' grades, etc.) to overcome self-reported data drawbacks and minimize the ceiling effect impact. Also, managing longitudinal data collection more carefully and explaining more in detail the importance of such endeavors to students may be of help. Fourthly, the absence of a follow-up is another limitation highlighted in the literature (Stes et al., 2012; Stes et al., 2010b). We recommend evaluation at a more extended period after completing the training program (i.e., a minimum of six months). Another limitation is the lack of control over possible disturbing factors such as the frequency of students' participation during the semester, the CG faculty's involvement in other forms of training or self-improvement activities, and the effect of the COVID-19 pandemic on the teachers' and students' activities.

7. Conclusions

The present study evaluated the impact of a pedagogical development program dedicated to academics at the teachers' and students' levels. The students' perceptions indicate a positive effect of the intervention on the teachers' abilities to promote their students' active learning, with teachers in the EG scoring significantly higher on these behaviors. Conversely, the more traditional approaches used by CG teachers in stimulating the student's understanding of fundamental concepts seem more effective than the practices employed by the EG teachers. Another notable result was that the

intervention lowered the resilience level of the teachers who won a didactic grant, participated in the training program, and further implemented the RCL instructional model in one discipline during an entire semester. Even though it was the beginning of the Covid-19 pandemic and participation in the training program followed by the implementation of the RCL instructional model at one specific subject matter was a significant workload for the teachers from the EG, academic developers should be more attentive to teachers' availability for the additional effort that comes together with the participation in a long-term instructional development program. Higher education institutions should look for possible measures to mitigate this effect using innovative solutions (e.g., teaching hours reductions or compensation of some of the research or administrative indicators with participation in accredited or long-term instructional training).

The last meta-analysis on the impact of instructional development programs concluded that the effects of controlled studies conducted before the pandemic are generally minor (i.e., $d = 0.396$ on the students' outcomes and $d = 0.315$ on the teachers' outcomes) (Ilie et al., 2020). What could have happened if the Covid-19 pandemic were not to come?! Even if we do not know the answer to this question, the present pedagogical program had some significant positive effects, including a positive increase in student-centered teaching behaviors that stimulate the students' active learning. The pedagogical training after Covid-19 may require more preparation and resources for significant positive changes. Even more, as all the questionnaires used in the present study showed good internal consistency and were previously adapted and validated on the Romanian population, future initiatives in the Romanian context and not only can rely on these applied instruments.

We hope the present study could stand as an example for other stakeholders who are involved in teacher training programs in the higher education Romanian and worldwide context. Starting with the Reflexive-collaborative instructional model and the didactic grants competition aiming to stimulate academics to be more student-centered and continuing with the training program described in Annex 1, the present approach could serve as a model for other initiatives of other teaching & learning academic development centers willing to undergo such an endeavor. However, one should adapt the principles and contents used in our training to the specific needs of their

organization. Also, one should find ways to overcome the limitations of the present investigation based on the suggestions mentioned above.

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The authors declare that they have no conflict of interest.

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Annex 1 – Description of the selection process and training programs characteristics

In line with the principles of the Bologna process, the West University of Timișoara (WUT) has invested consistent resources in developing an institutional teaching and learning brand based on the paradigm of student-centered education (Ilie et al., 2020). In this regard, the WUT, through its Center of Academic Development (CAD), has developed a Reflexive-Collaborative Learning (RCL) instructional model to ensure the quality of the learning process. The instructional model emerged as a symbiosis between the evidence from the literature and the necessities of the university's teachers. Regarding the main educational components of the instructional model (i.e., collective teacher efficacy, collaborative learning, reflexive teaching, and learning), there is strong empirical evidence that demonstrates their positive influence on the quality of student outcomes (Hamilton & Hattie, 2022; Hattie, 2012; Schneider & Preckle, 2017). At the same time, CAD carried out several analyses of training and instructional development needs for the entire teaching staff (Bunoiu et al., 2020; Ilie et al., 2017; Ilie et al., 2018; Mladenovici et al., 2019). Starting with the 2020-2021 academic year, to stimulate academics to adopt the instructional model, various formative-informative activities were carried out (e.g., optional workshops for academics, mandatory courses for novice teachers, exchanges of best practices, individual counseling, etc.), including the Didactic Grant Competition the impact of which is analyzed in the present study.

Participation in the teaching grant competition is optional and addresses all the WUT's academic staff and researchers who undertake teaching activities regardless of their degree, academic status and work experience. Individuals suitable for the competition must complete an online form on the CAD platform. The form includes an application request, an implemented and registered teaching work project according to the reflexive-collaborative instructional model, a reflection report on the project that was carried out, proof of the participants' consent to register the teaching work supported, and consent to the use of personal data. After the submission deadline, each application was evaluated by committees consisting of three members (the chair of the evaluation committees and two evaluators) following a peer review process. According to the available funding, 20 didactic grants were offered to the best 20 applications.

The *Didactic Grant Competition* followed the following implementation schedule:

Phase 1 - prior to the start of the second semester

- Each grant recipient completed the baseline questionnaire addressed to grant recipients.
- Each grantee submitted the contact details (first and last name, e-mail address, and telephone number) of a colleague with similar professional characteristics who agreed to participate in the control group, hereafter referred to as the counterpart.
- Teaching grant beneficiaries participated in training activities for the implementation of the RCL model, organized by the CAD team, depending on the beneficiary category.
- Each counterpart completed the baseline questionnaire.
- Both the grant beneficiary and the counterpart had to choose a referential subject matter (i.e., from the same discipline as the counterpart) and communicate the schedule of the referential subject matter and the concrete access data to the teaching activity. Also, teachers were supposed to ask their students in the chosen subject matter for their informed consent, assuring them that their participation in the impact assessment was voluntary. All the participants (i.e., teachers and students in the EG and CG) gave their informed consent and were informed about the data anonymity.

Phase 2 - weeks 1 - 2 of the second semester

- Each grantee uploaded the referenced subject sheet or curriculum matrix of seminar activities, as appropriate, to the online platform.
- Both grantees and counterparts allowed a member of the CAD team access to a teaching activity for 15 - 20 minutes to administer the student questionnaire to the students present.

Phase 3 - weeks 3 - 12 of the second semester

- Each grant beneficiary developed and uploaded three teaching activity projects to the platform.
- Each grantee sent an invitation to the CAD team to participate in a teaching activity.

- Following the participation in the observed teaching activity, a collective reflection on the activity took place. In the collective reflection, the grant beneficiary and the CAD team discussed ways to improve their teaching and the accuracy of the application of the RCL model in the observed activity to collect suggestions for innovation of the model and to increase the efficiency of its application.
- Following the collective reflection, the CAD team produced a report which was made available to the grant beneficiary.

Phase 4 - weeks 13 - 14 of the second semester

- Both grant beneficiaries and counterparts completed the dedicated posttest questionnaire.
- Both grant beneficiaries and counterparts allowed a member of the CAD team access to a teaching activity for 15 - 20 minutes to administer the student questionnaire to the attending students.

Phase 5 – during the 3 weeks corresponding to the second semester's exam session

- The CAD team wrote an impact report for each grantee and offered it to the grant beneficiary.

Training sessions were organized for the winners of the teaching grant competition ($N = 20$). The training sessions aimed to change the participants' teaching and learning conceptions and teaching practices towards a student-centered approach by integrating the RCL model into their activity. Accordingly, improvements in students' learning approaches and their perceptions of teaching quality were expected. Furthermore, even though not directly addressed, improvements in the participants' psychological and motivational resources (e.g., teaching motivation, work engagement, self-efficacy, optimism, etc.) were also expected to happen as a consequence of the activities carried out in the training and all the necessary logistic support they received during the semester (i.e., between the measurements). Before the beginning of the semester, participation in these sessions was mandatory for all the participants. Completing the training program required approximately 25 work hours (i.e., 1 ETCS). Thus, given the pandemic context, two sessions were organized, both in online format:

- *Session 1* (Discipline sheet and curriculum matrix) lasted 4 hours. The theoretical content that was covered consisted of essentials of educational design; educational design tools; foundations and specifics of RCL; formulation of outcomes for a referential discipline; elaborating a curriculum matrix model and a syllabus model according to RCL principles. The participants received theoretical input followed by practical collaborative practice and reflections. The first session also involved completing a written assessment individually after the 4 hours of training. The evaluation included elaborating a curriculum matrix or syllabus according to the RCL model. Each participant was tasked with uploading the document on the CAD e-learning platform.
- *Session 2* (Teaching activity project) lasted 4 hours. The theoretical content covered was related to instructional models, the design of large group and small group activities, and other relevant characteristics of the RCL model. The participants had the chance to elaborate activities specific to their disciplines collaboratively and under the supervision of the instructors. To graduate the training, participants were tasked to elaborate three activity projects according to the RCL model. Each participant had to upload the projects on the CAD e-learning platform.

The online training sessions had a cumulative duration of 8 hours, but completing the evaluation tasks involved an individual workload equivalent to approximately 17 hours.

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